Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

open ice to find a passage outwards. At meridian we find ourselves within 2 miles of the W. land, near the bay S. of Batson's Bay, with the ice close to the land, but slack to the S. as far as can be seen: make sail in that direction.

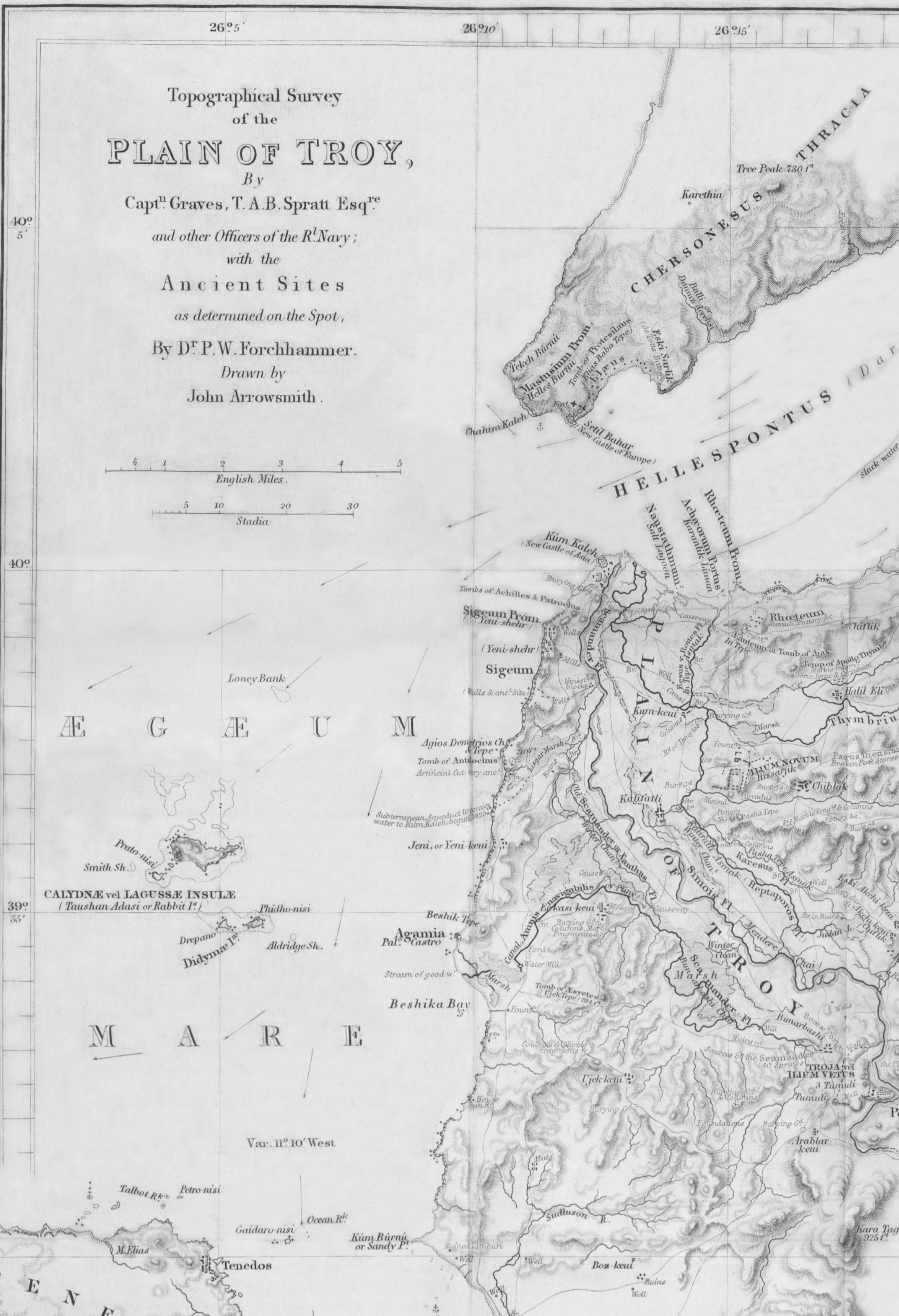
14th.—The snow dispersed, and we found room among open ice to run along the land till 8 p.m., when the breeze subsided; and through the night there were light breezes from the S. Continued running through the open ice during the dark watches, and at daylight perceived clear water distant from us about 8 miles. The breeze subsiding, again sent the boats a-head to tow the ice, being very slack without Queen's Cape, from which we were distant about 15 miles; but towards the S. land a good deal of it seen, and rather close. At meridian we were distant from the edge of the ice about 4 miles. Some high-finned cachelot, but no mysticete, seen. Lat. obs., 64° 40′.

15th.—Wind S.S.W. and S.S.E. After towing about 2 hours, reached the water, and taking up the boats made sail to ply to windward, having at that time Coburg Rock considerably open, off Queen's Cape. Several bergs; some pieces of broken and also of heavy ice are drifting about, while a close stream lies along the land, and surrounds the rock. A heavy point stretches out to the E. from the N. side of the cape, and forms a bight, into which we are stretching at meridian. The upper part of the land is capped with snow-clouds; and at meridian the rock bears S.S.W., distant 10 or 12 miles. Some of the islands further N. are also seen. Sun obscure.

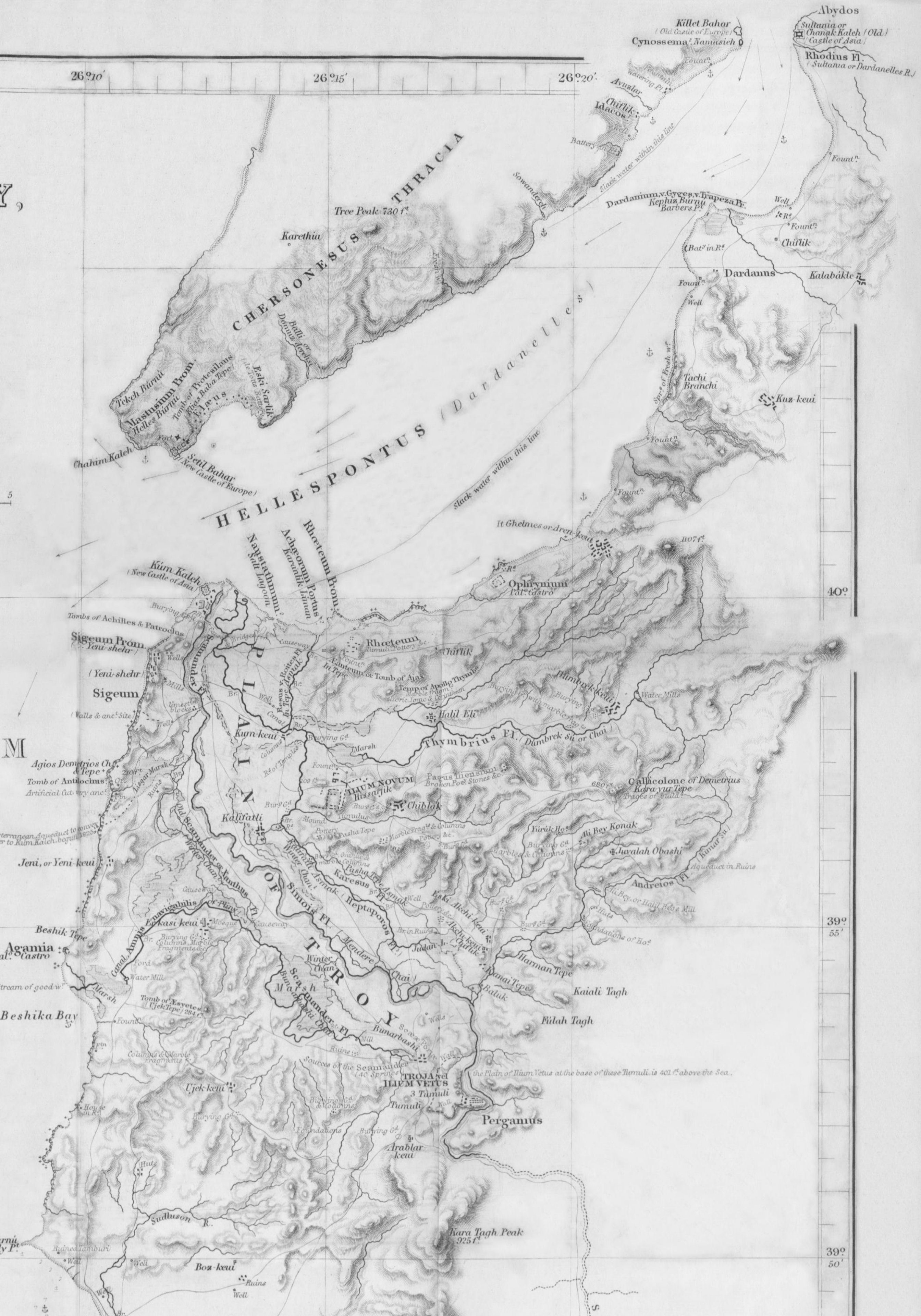
II.—*Observations on the Topography of Troy.* By Dr. P. W. Forchhammer. To illustrate a Map of the Plain of Troy, made by Mr. T. A. B. Spratt, Mate, under the direction of Mr. Thomas Evans, Lieut. R.N.

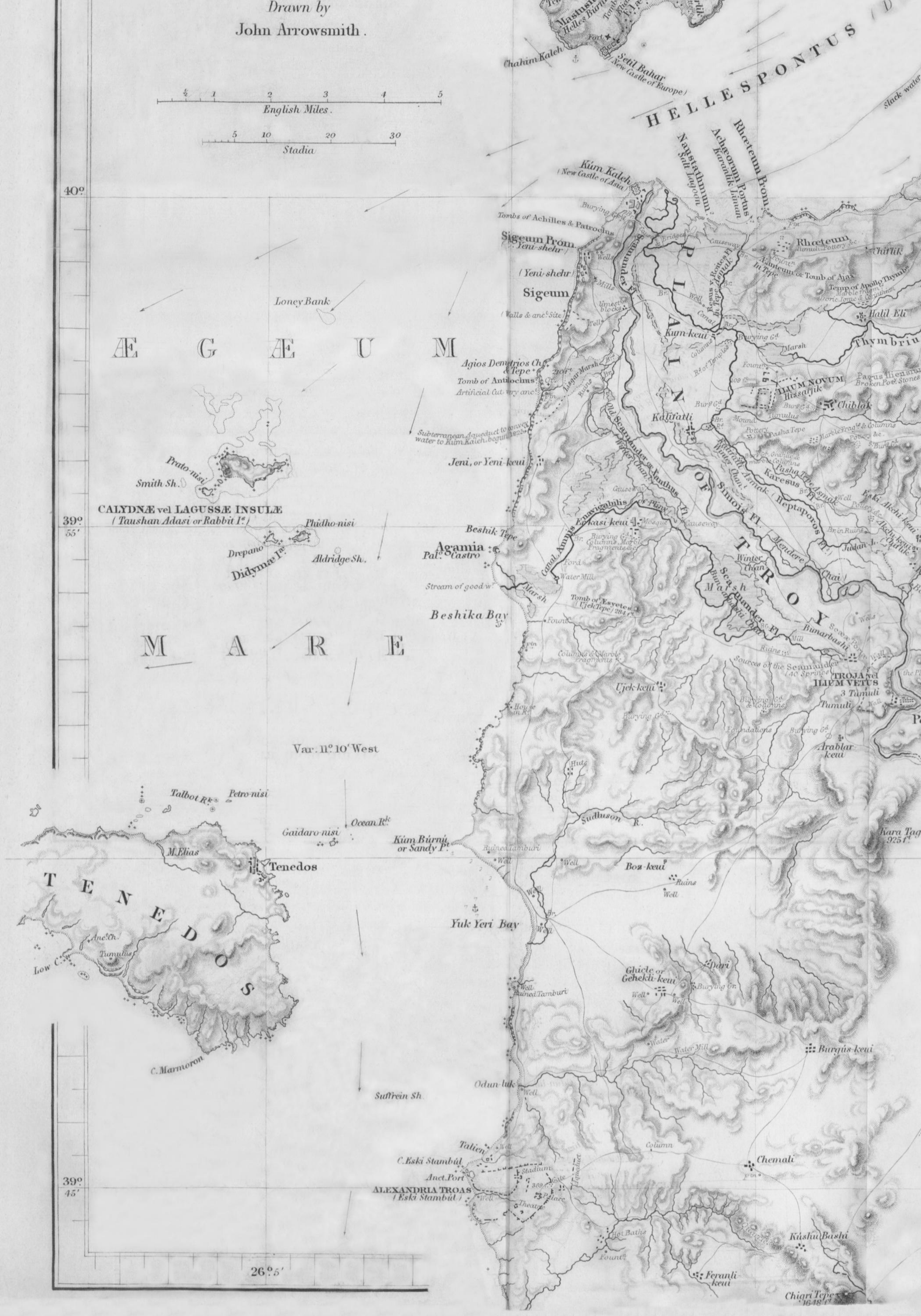
[Communicated through Captain Beaufort by Mr. Thomas Graves, Lieut. R.N., F.A.S., F.G.S., &c. &c., Commanding Her Majesty's Surveying Vessel Beacon, and at present in charge of the Archipelago Survey.]

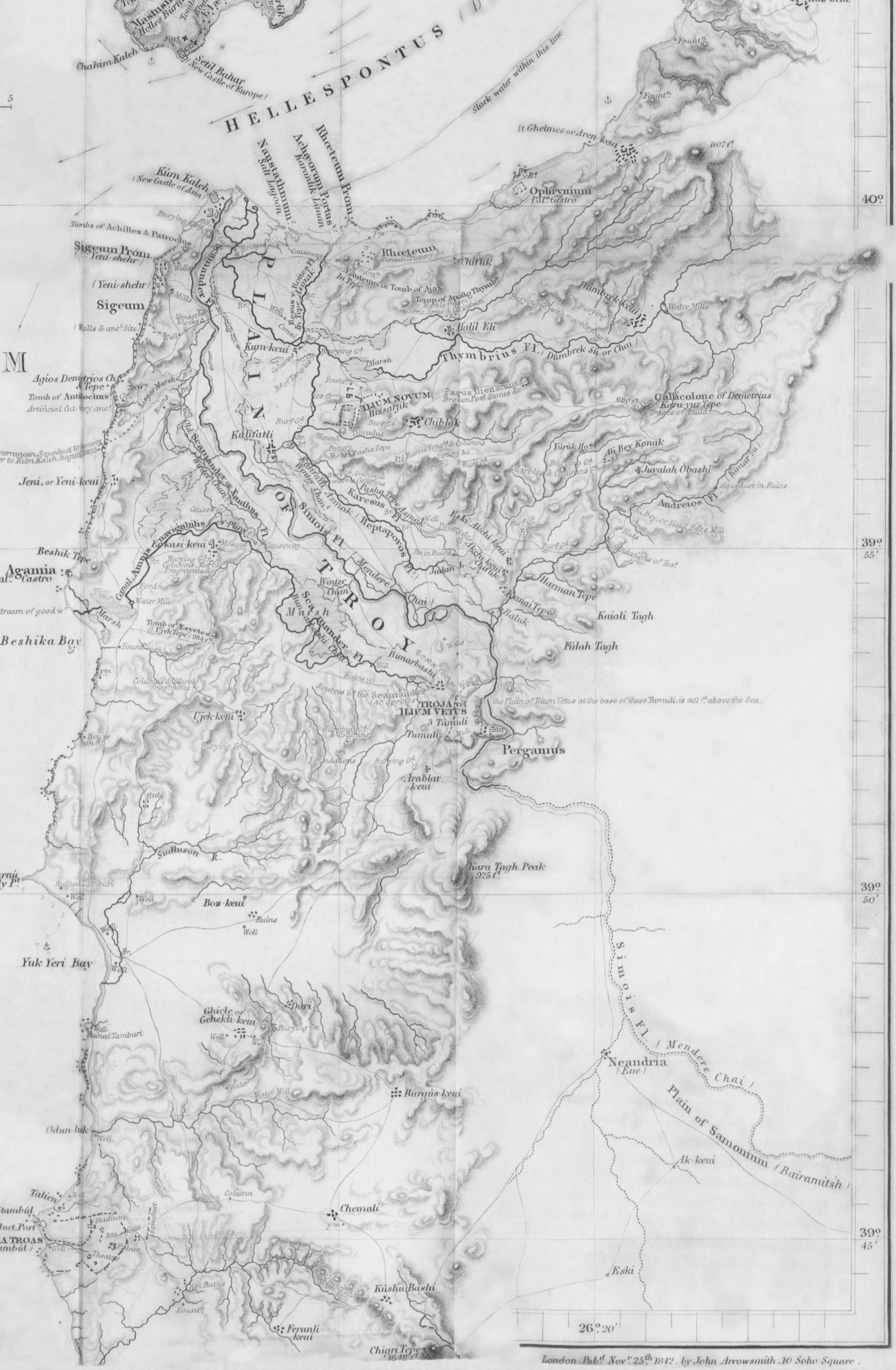
The Plain of Troy resembles in many respects all the larger plains of Greece and Asia Minor. They are bounded on three sides by mountains, and on the fourth are open to the sea. Each of them is intersected by a river issuing from the range of mountains opposite to the sea, and running in a parallel direction to the ranges on both sides of it. Towards the lower extremities of the plain are generally brackish lakes, only separated from the sea by small banks of sand, which admit of the water carried off by



Topographical Survey
of the
PLAIN OF TROY,
By
Captn. Graves, T. A. B. Spratt Esqre.
and other Officers of the Rl. Navy;
with the
Ancient Sites
as determined on the Spot,
By Dr. P. W. Forchhammer.
Drawn by
John Arrowsmith.


26°10′
26°15′
26°20′
40°
39° 55′
39° 50′
Abydos
Killet Bahar (Old Castle of Europe)
Cynossema, Namasieh
Sultania or Chanak Kaleh (Old) (Castle of Asia)
Rhodius Fl. (Sultania or Dardanelles R.)
Fount.
Watering Pl.
Avuzlar
Chiflik
Idacos
Battery
Sowandere
Slack water within this line
Dardanium v. Gyges v. Trapeza Pr.
Kephiz Burnu
Barbers Pt.
Well
Chiflik
Bat. in Rs.
Dardanus
Kalabákle
CHERSONESUS THRACIA
Tree Peak 730 ft.
Karethia
Tachi Branchi
Kuz-keui
Spr. of Fresh w.
HELLESPONTUS (Dardanelles)
Tekeh Burnu
Mastusium Prom.
Helles Burnu
Tomb of Protesilaus
Elias Baba Tepe
Elæus
Eski Sarlik
Fort
Chahim Kaleh
Setil Bahar (New Castle of Europe)
Slack water within this line
It Ghelmes or Aren-keui
1077 ft.
Ophrynium
Pal. Castro
Naustathmum
Sill Lagoon
Achæorum Portus
Karanlik Liman
Rhœteum Prom.
Kúm Kaleh (New Castle of Asia)
Burying Gd.
Tombs of Achilles & Patroclus
Sigeum Prom. (Yeni-sheher)
(Yeni-sheher)
Sigeum
(Walls & anc. Site)
Wells
Mills
Bridge
Causeway
Rhœteum
Tumuli, Pottery &c.
Aianteum or Tomb of Ajax
In Tepe
Chiflik
Temp. of Apollo Thymb.
Halil Eli
Dúmbrek Keui
Water Mills
Thymbrius Fl. (Dúmbrek Su or Chai)
Kum-keui
Marsh
PLAIN OF TROY
Agios Demetrios Ch. & Tepe
Tomb of Antilochus
Artificial Cut
Ilium Novum
Hissarjik
Chiblak
Pagus Iliensium
Broken Pot. Stones &c.
Callicolone of Demetrius
Kara yur Tepe
680 ft.
Kalifatli
Pasha Tepe
Marble Frag. & Columns
Ali Bey Konak
Juvalah Obashi
Yúrúk Ho.
Kimar Su
Aqueduct in Ruins
Andreios Fl.
Jeni, or Yeni-keui
Old Scamander
Scamander or Xanthus Fl.
Kalifatli Asmak
Simois Fl.
Karesus
Heptaporos Fl.
Eski Akchi keui
Akchi keui
Chiflik
Harman Tepe
Kaiali Tagh
Fulah Tagh
Beshik Tepe
Agamia
Pal. Castro
Erkasi keui
Canal, Amnis navigabilis of Pliny
Water Mill
Beshika Bay
Marsh
Tomb of Æsyetes Ujek Tepe 284 ft.
Mendere Chai
Judan
Winter Chan.
Scamander Fl.
Bunarbashi
Baluk
Sources of the Scamander (40 Springs)
TROJA and ILIUM VETUS
3 Tumuli
the Plain of Ilium Vetus at the base of these Tumuli is 401 ft. above the Sea.
Pergamus
Ujek-keui
Arablar keui
Burying Gd.
Foundations
Huts
Sudluson R.
Kara Tagh Peak 925 ft.
Ruined Tambur
Well
Boz-keui
Ruins


Drawn by
John Arrowsmith.
English Miles.
½ 1 2 3 4 5
Stadia
5 10 20 30
40°
39° 55′
39° 45′
26° 5′
ÆGÆUM MARE
HELLESPONTUS
Chahim Kaleh
Setil Bahar (New Castle of Europe)
Slack water
Kúm Kaleh (New Castle of Asia)
Naustathmum? Setil Lagoon
Achæorum Portus Karanlik Liman
Rhœteum Prom.
Tombs of Achilles & Patroclus
Sigeum Prom. (Yeni-shehr)
(Yeni-shehr)
Sigeum
(Walls & anct. Site)
Loney Bank
Rhœteum
Aianteum or Tomb of Ajax
In Tepe
Chiflik
Temp. of Apollo Thymbræus
Halil Eli
Thymbrius
PLAIN OF TROY
Kum-keui
Scamander Fl.
Agios Demetrios Ch. & Tepe
Tomb of Antilochus
Artificial Cut very ancᵗ.
Subterranean Aqueduct to convey water to Kúm Kaleh, begun 1825
ILIUM NOVUM Hissarlik
Pagus Iliensium
Chiblak
Kalifatli
Old Scamander or Xanthus Fl.
Simois Fl.
Karesus
Mendere Chai
Pasha Tepe
Jeni, or Yeni-keui
Prato-nisi
Smith Sh.
CALYDNÆ vel LAGUSSÆ INSULÆ (Taushan Adasi or Rabbit Iˢ.)
Phidho-nisi
Drepano
Didymæ Iˢ.
Aldridge Sh.
Beshik Tepe
Agamia Palᵗ. Castro
Canal Ampis navigabilis
Erkasi-keui
Stream of good wᵗ.
Marsh
Tomb of Esyetes (Ujek Tepe) 284 fᵗ.
Beshika Bay
Bunarbashi
Sources of the Scamander (40 Springs)
TROJA vel ILIUM VETUS
3 Tumuli
Ujek-keui
Arablar keui
Var. 11° 10′ West
Talbot Rᵏ.
Petro-nisi
Ocean Rᵏ.
Gaidaro-nisi
Kúm Búrnú or Sandy Pᵗ.
Sudluson R.
Kara Tag 925 fᵗ.
M. Elias
Tenedos
TENEDOS
Ancᵗ. Ch.
Tumulus
Low C.
C. Marmoron
Boz-keui
Ruins
Yuk Yeri Bay
Ghicle or Gehekli-keui
Dari
Ruined Tamburi
Water Mill
Burgás-keui
Odun-luk
Suffrein Sh.
Talien
C. Eski Stambúl
Anct. Port
ALEXANDRIA TROAS (Eski Stambúl)
Stadium
Theatre
Palace
Aqueduct
Column
Chemali
Hot Baths
Kúshu Bashi
Feranli keui
Chigri Tepe 1648 fᵗ.



London. Pub.d Nov.r 25th 1842, by John Arrowsmith, 10 Soho Square.

evaporation being replaced by that which filters through. These lakes vary in size according to the dimensions of their respective plains, but are in general deep enough to admit of fisheries. Such plains as have but a trifling slope from the base of the central range to the sea are necessarily much exposed to inundations. The Plain of Troy, although in its general character it closely resembles this common type, is marked at the same time by features peculiar to itself.

The mountains which bound the plain on three sides consist for the most part of a sandy limestone. Their ascent is gradual, except in a few instances, where the naked rock springs abruptly from the alluvial soil, forming isolated hills. The mountains do not, like those in most Grecian plains, terminate in peaks or sharp ridges, but form an elevated table-land, covered in many places by a deep and fertile soil. Near the Kimar the rock is decidedly of a volcanic character; and judging from the numerous small villages and huts in this neighbourhood, the soil must be more fertile than the clayey soil which predominates all around. The soil of the plain is a very rich alluvial clay: indeed sand is only found in a very few places, either in the upper or the lower plain. Where it does occur, it forms little hillocks, near the rivers, and particularly near the Kalifatli-Asmak.

The sea, too, which bounds the Plain of Troy on the N., differs in character from that which terminates most Grecian plains. There is no current in the Mediterranean so strong and rapid as that of the Hellespont. This current runs at the mouth of the Mendere, from E. to W., and the river discharges its waters in a westerly direction. Immediately E. of the mouth of the Mendere, however, the Hellespont widens considerably, and a strong counter-current from W. to E. sweeps the shore of the Plain of Troy from that river to the Rhætean promontory.

The main river is larger in proportion to the extent of the plain than is usually the case with Grecian rivers. There are also an unusual number of smaller rivers, torrents, and springs: the springs in particular are uncommonly abundant.

The course of the Mendere, like that of the rivers of Kleone, Nemea, and Sicyon, of the Alpheios, Eurotas, and Pamisus, may be divided into three parts. Descending from the innermost recesses of the mountains, it first falls into a large plain in the interior of the country, then passes through a very narrow valley, formed by the lower branches of Mount Ida, and thence issues into the lower plain. It is principally by the contributions of the springs and streams of the upper plain that the Mendere is kept flowing during the whole summer, like the Eurotas and Alpheios. It is, however, larger than either of these rivers, and may boast not only of a perennial stream of water, but also of a deep and well-defined bed all the way down to Kum-Kaleh. This bed, which consists of mere sand, while the soil of the plain is clay, is from 200 feet to 300 feet broad: its banks vary from 8 feet to 12 feet in height, and are partially covered with willows and other trees. During the driest season the water cuts into the sand: in the month of August the stream was on an average from 30 feet to 40 feet broad, and ¾ of a foot deep.

The Bunarbashi-Su is the next river in point of importance. It is known since the time of Chevalier that among the calcareous rocks below the village of Bunarbashi there are a great many copious springs, remaining constantly at a temperature of 63° or 64°, and consequently appearing cold in summer and warm in winter. The water from these springs forms a river, not very broad, yet large enough by its inundations to convert the adjoining part of the plain into a marsh, through which it runs in a defined bed, whirling and eddying, although its right bank is for the most part nearly level with the surface of the stream. This river, after passing through its own marshes in a direction parallel to the Mendere on the E., and the mountain-ridge on the W., is carried off westward to the sea, through an artificial channel, which commences at the N.E. corner of the slope upon which the Ujek-Tepe is situated, and terminates to the S. of Beshika-Tepe (Cradle-hill). At the eastern extremity the banks on the right side of this canal are so low that even during summer they are overflowed in some parts: midway the banks get higher: at the western extremity the water spreads and forms a marsh, from which a stream discharges itself into Beshika Bay.

E. of the Mendere, and N.W. of the new Chiflik of Akchi-Kevi, at the foot of three hills, in which a branch of the Chiblak range terminates, is a marshy lake, fed by springs called by the natives Judan (a water that never diminishes). From the Judan issue three Asmaks.* Two of these flow N. of W. towards the sea; the third flows in an opposite direction, and falls into the Kimar-Su.

The more easterly Asmak of the two which hold their course towards the sea, flows close to the base of the Chiblak range, and joins the other near the western termination of the branch of these hills, on which the Pasha-Tepe is situated. This eastern branch we will call the Pasha-Tepe-Asmak, there being no other land-mark near after which to name it: the other is called by the natives the Kalifatli-Asmak. The Kalifatli-Asmak has a deep and very sharply-defined bed, from its source all the way down to the sea. In the month of August the water from the Judan does not preserve the character of a continuous stream further than about a mile from the lake. Lower down the channel was dry in some parts, and overgrown at the bottom with brushwood and rushes; in others it was filled with pools of stagnant water. In the upper part the course of the river may be traced by the line of trees which borders its banks; but in the lower part the bed is scarcely discerned before you reach the edge of its steep bank. The Kalifatli-Asmak does not come down from the mountains, nor does it fall into the Mendere, as has been erroneously represented by former topographers and map-makers. It issues from the Judan in the plain; and it is only during the period of the winter inundations that its waters mingle with those of the Mendere, and then in consequence of the latter overflowing and quitting their natural bed. Although the Asmak, after passing between the village of Kalifatli and the ruins of *Ilium recens,* now called Hissarjik, is forced by the slope of the Rhætean ridge to make a great bend in the direction of the Mendere, and is thrown very close to that river, not even the smallest of the arms into which the former is divided at the lowest part of the plain fall into the latter; but all flow into two lakes of salt-water, near the shore, the eastern branch being the most considerable. To the N.W. of Hissarjik, and under the ruins so called, the Kalifatli-Asmak joins the Dumbrek-Chai. This river takes its name from the village of Dumbrek, situated on its banks, at the upper end of a large and beautiful plain, extending from W. to E., between two mountain-ridges, of which that to the N. may be called the In-Tepe ridge; that to the S. the Chiblak ridge. Above the village of Halil-Eli the water of the Dumbrek-Chai disappears under the pebbles and sand; but as it rises again and forms a perennial stream from below that village to where it is lost in a marsh near Hissarjik, the inhabitants call it *Chai* or *Su.* Before entering the marsh, it divides into several small arms, and passes through a little wood. In the month of August the marsh contained water only in the upper part; the lower was dried up by the heat, and full of broad deep cracks. Further down some small channels show themselves here and there, which gradually unite and form a deep bed, like that of the Kalifatli-Asmak, which it joins a little above the village of Kum-Kevi. Below the village of Halil-Eli, a smaller arm branches from the Dumbrek-Chai, which flows close to the base of the Rhætean ridge, and after widening into flat marshes, like the Dumbrek-Chai, collects its waters again into a defined bed, and turns to the N. at the western extremity of the ridge. At the turning, an artificial channel from the Kalifatli-Asmak joins it; and the great accession of water received through this channel during the winter season is the principal cause why the bed of this arm of the Dumbrek-Chai, which we will call the In-Tepe-Asmak, suddenly gets larger, and terminates in a broad opening towards the Hellespont. The mouth of the In-Tepe-Asmak has steep banks, is deep, and at all times filled by the sea, resembling a harbour more than a river, and on this account it is called by the Turks Karanlik Limani.

---

* Asmak is a term applied to channels which contain running water in winter only, and standing pools in summer. The beds of the Asmaks in the Trojan plain are commonly cut by the water through the flat soil, so that in many places they are not visible before you reach the edge of the steep bank.

The Kalifatli-Asmak, though at some distance from the eastern hills, flows in a direction parallel to their base. The sudden and wide bend which it makes at the mouth of the Dumbrek valley can only be accounted for by a prolongation of the declivity of the Rhætean ridge. The In-Tepe-Asmak must have taken the same course, had it not by keeping a higher level in the Dumbrek valley found an intermediate depression, through which it obtained a shorter outlet to the sea.

The third outlet of the Judan, which we will call the Akchi-Keui-Asmak, falls into a marsh of the Kimar, and communicates by the channel of that river with the Mendere.

Great confusion has been introduced into the topography of Troy, through the mistakes of travellers with respect to the Kimar or Kamara. Mr. Turner* evidently gives that name to the Pasha-Tepe-Asmak. Dr. Hunt† calls the Kalifatli-Asmak the Kamara. It is the most remarkable river on the route of Dr. Carlyle,‡ who alters its name, however, to Slaimar; and Lady M. W. Montague and Mr. Sandys have called it Simores. The river named Kimar or Kamara by Count Choiseul Gouffier does not exist at all; but the river which he places next to it and calls Thymbrius, is the Kimar. Some of these errors have had their origin in the anxiety of travellers to identify existing names with those they found in the Iliad; others, in misapprehension of the information received from the natives. The Greek for an arch is καμαρα (*kamara*). The Turks have adopted the word, which they pronounce Kimar; and hence any water spanned by a bridge or aqueduct is called Kimar-Su, or, in the pronunciation of the Greeks, Kamara-Su.

There is no doubt that, commonly speaking, the inhabitants mean by the name Kimar, or Kimara, the river so designated in Mr. Spratt's map which these notes are meant to illustrate—the south-easternmost tributary of the Mendere, in the lower plain. The Kimar-Su has its name from a magnificent arch or aqueduct, founded on high rocks, 55 feet wide, and rising 92 feet above the bed of the river, which crosses it about 5 or 6 miles above its junction with the Mendere. Below the aqueduct the stream flows in a very narrow valley, between high mountains covered with a wild and luxuriant vegetation, and at the distance of 2 miles turns a mill called Halil Beg's mill. From the mill it passes between high volcanic rocks, of a red hue, passing at some places into black: 2 miles from the mill the valley becomes so narrow that the common road turns to the left across a hill, on which are some nameless huts, built of rough stones, without mortar, with nothing about them to indicate their age or origin. On descending into the plain, the bed of the Kimar was found quite dry in the month of August. Ascending the gorge from this point to where the road struck off from the river side, a continuous stream was found flowing among huge blocks of stone, between high steep crags, which approach so near that some plane-trees which have taken root among them on either side touch, and give to the narrower valley somewhat the appearance of a cave. In the plain the bed of the river increases in breadth, and after passing the last height to the N. divides into three arms which re-unite near the Chiflik of Akchi-Kevi, where the water begins to re-appear at intervals. About 100 yards farther on the river passes through a little marshy wood called Baluk (a place for honey), at the lower end of which the channels of the Akchi-Kevi-Asmak meet those of the Kimar. The marsh was quite dry in the month of August; but a deep and well-defined bed, with a smaller one by its side, could be traced from it to the Mendere, through which the waters of the Kimar and Akchi-Kevi-Asmak find their way in the wet season.

---

* Journal of a Tour in the Levant, vol. iii. p. 224.

† Walpole's Memoirs relating to Turkey.

‡ Rennell's Observations on the Topography of the Plain of Troy, Map No. 5; cf. p. 33.

In addition to these watercourses the plain contains a number of swamps and marshes. Those which contain permanent lakes have been already noticed: they are, on the W. side of the Mendere, the marshes surrounding the springs which form the Bunarbashi-Su, and on the E. side, the sources of the three Judan Asmaks. Both are on a higher level than that of the central plain; the Bunarbashi swamps are much more extensive than those of the Judan. In addition to them the Bunarbashi-Su forms some marshes in its lower course by overflowing its artificial banks; and when in winter it breaks into the ancient channel which appears originally to have conveyed its waters into the Mendere, it fills an extensive swamp near Yeni-Kevi, which produces a great quantity of reeds. In the month of August this swamp was sufficiently dry to admit of a man passing through it. Indeed it is evident from what has been said above, that, with the exception of the main river, all the watercourses in the plain of Troy widen at their lower extremities into marshes, which in winter are swampy or full of running water, and in summer hard as stone, and cracked like a cake of wax. The Mendere having a deep bed and more abundant supply of water does not terminate in the same way. In the time of rains, however, it overflows its banks as high up as the parallel of the Judan lake, and forms a swampy river midway between its natural bed and the channel of the Kalifatli-Asmak, as may be seen indicated on the map. This inundation river has cut for itself a deep defined bed near Kalifatli, but presents for the greater part of its course the appearance of a broad shallow sheet of surface water. The part of the plain thus covered is easily recognised in the driest time of summer by a different kind of grass from what grows where the inundation does not reach.

Another kind of reservoir remains to be noticed—the salt-water lakes or lagoons at the lower extremity of the plain. During the summer, when there is little water in the Mendere and none at all in the Asmaks, the mouths of their channels are filled with salt water. At the mouth of the Mendere is a large lake with a small outlet, which the current of the Hellespont turns to the W. The lake immediately to the E. might be called the mouth of the inundation river of the Mendere, as its water finds its way into this reservoir by several channels. During the summer, when there is no influx of water, this lake is separated from the sea by a low sandy bank. It is very deep, and filled with salt water. The next lake, still proceeding eastward, is of much greater extent, and probably of greater depth also: into it the broadest and deepest arm of the Kalifatli-Asmak discharges itself. There appears to be a permanent communication between this lake and the sea. When I passed along the sandy bank which separates them in the month of August I was obliged to cross a deep channel, through which a current was at that time running with great velocity from the sea *into* the lake. The salt water extended more than ½ a mile up the bed of the Asmak. The defined beds of the rivers, or asmaks, do not reach close to the lakes into which they fall, but their banks are high and steep as far as they do extend; the bottoms of their channels are depressed considerably below the general level of the plain.

Only two of the rivers of the plain contain running water in the driest season of the year—that is, in the months of August and September. It may happen in a very dry summer that the bed of the Mendere dries up, as seems to have been the case when it was seen by Dr. Sibthorpe, in September, 1794; but the inhabitants assured me that this river at all times, even in the heat of summer, has a small shallow stream of water; and this was certainly the case when I saw it in the month of August. The Bunarbashi-Su is in the driest season a continuous stream, 3 feet deep where shallowest, and in many parts much deeper. At this time of the year, the corn having been gathered in, there remains only some sun-burnt grass on the surface of the hard clayey soil of the plain; but all along the main river, and at intervals in the beds of the smaller water-courses, its banks are lined with beautiful trees.

There is no other plain in Asia Minor so much subjected to the influence of water as the plain of Troy is in the rainy season. The Mendere begins to rise as soon as the rains commence in the upper regions of Mount Ida. At its entrance into the lower plain it receives a considerable accession from the Kimar, which, rising far up in the mountains, is also affected by the early rains. The subterranean veins and channels of the mountain which feed the springs of the plain will also be gorged with water, and the probability is that even in this early part of the winter the three Asmaks of the Judan become large and continuous streams, the Akchi-Kevi-Asmak becomes an acting tributary of the Mendere, and a portion of the waters of the Bunarbashi-Su overflow its low eastern banks, and find their way into the bed of that river. As the winter advances the clouds fall down upon the lower Ida, and ultimately discharge themselves over the whole plain. With the exception of what is carried off by the artificial channel of the Bunarbashi-Su, the whole of the water of this side of Mount Ida is drained into the plain of Troy. The Mendere overflows its banks and forms the inundation river mentioned above. The rains of winter are generally accompanied by strong winds from the S.W., which obstruct the current of the Hellespont, and raise the sea-water above its ordinary level at the mouths of the Mendere and of the two Asmaks, thus impeding the current of the rivers and increasing the inundation in the lower part of the plain. The inundation thus created is permanent during the winter. At first it only covers the part of the plain adjoining the salt-water lagoons and the mouth of the Mendere, and up to the high steep banks of the Asmaks. In time, however, the extensive plain in the interior of Mount Ida, between Ené and Bairamiché, is converted into an immense lake, of which the narrow valley through which the Mendere flows between Ené and Bunarbashi is the only outlet. In this passage the water sometimes rises in winter 30 or 40 feet above the bottom of the river's summer bed, as may be seen by the grass left adhering to the trees on its banks. The whole plain of the Mendere is submerged, and at times even the valleys of the Kimar and the Dumbrek are overflowed to a considerable height. In them, however, the inundation rarely continues longer than five or six days at a time; but it recurs at frequent intervals during the rainy season.

This annual alternation from excess of dryness to excess of moisture is not the only cause of change in its superficial conformation to which the plain of Troy is subjected. The cold is almost as extreme in winter as the heat in summer. The mountains are covered with snow, and the waters of the plain with ice strong enough to bear men, and even horses where there is no current to prevent it from getting thick. In short, there is no district in Greece or Asia where the war of the elements is carried on so powerfully and under such a variety of forms as in the plain of Troy. It is only by distinguishing the different characters this plain assumes at different seasons of the year that a complete knowledge of its topography can be attained.

Next in importance to the natural features of the plain, for the student of comparative geography, are the vestiges of ancient structures scattered around it. There are ten unquestionably artificial tumuli *round* the plain; *within* it there are none.

Coming from Greece the first seen is the Ujek-Tepe, commonly called the tumulus of Æsyetes; it is situated on the slope of the Kara-Dagh, on the highest part of the ridge between Besika Bay and Bunarbashi. Close to it on the N. are some remains of a wall which have not hitherto been noticed by travellers.

A second tumulus is situated on the Sigæan ridge, near the eastern extremity of the artificial channel which conveys the waters of the Bunarbashi-Su to the Egean. This mound is called by the Turks Beshika-Tepe (cradle-hill), and from it Beshika Bay derives its name. On a point of land to the W. of this tumulus some remains of uncertain date (Palaio-castro) are supposed to mark the site of Agamia.

The eminence on the middle of the Sigæan ridge, near Yeni-Kevi, sometimes called the Agios-Demetrios-Tepe from the roofless church by its side, is evidently natural, and ought not to be numbered among the tumuli. The third tumulus therefore is that which is commonly called by travellers the tomb of Achilles, situated on the slope of the northern termination of the Sigæan ridge; the fourth, that of Patroclus, is a little lower down on the same slope. They are both artificial, and are called by the Greeks the two hills (τὰ δύα τεπὲ). The tumulus of Achilles was opened by order of Choiseul Gouffier, but unfortunately the operations were not superintended by any competent person. The excavations appear to have been merely superficial, and towards the summit of the mound. Some antiquities which were sent to Constantinople led Choiseul Gouffier to take it for the tumulus of Festus, the murdered friend of Caracalla, and to call an eminence in the Turkish burying-ground, near the bridge of Kum-Kaleh, the tomb of Achilles: in this he was mistaken, for that eminence is decidedly natural.

The fifth tumulus is that of Ajax, now called In-Tepe, at the north end of the Rhætean promontory. This monument had been broken into before it was visited by modern travellers, and it is still in the same condition in which Le Chevalier found and described it. There are some other mounds on the northern side of the Rhætean ridge, not far from In-Tepe, strongly resembling the artificial tumuli, but which have not yet been examined.

The sixth tumulus is called the Pasha-Tepe; it stands on the slope of the Chiblak range, and is the same which Choiseul Gouffier, after Demetrius of Scepsis, has named the tumulus of Æsyetes.

There are no artificial tumuli between the Pasha-Tepe and Bunarbashi. The three tepes near Akchi-Kevi are natural hills. Some doubts may exist as to the character of the Kanai-Tepe, about five minutes' walk from the Chiflik of Akchi-Keui, in the direction of Bunarbashi, but its immense size renders its being artificial improbable. Excavation alone can settle this point.

The seventh, eighth, and ninth tumuli are on the top of the rocky eminence above Bunarbashi, a little outside of the thick wall which separates them from the Acropolis. They consist of natural stones broken from the rock on which they stand: at the side of each is a deep pit, apparently artificial. Near the most southern of these three mounds is a circular foundation resembling a threshing-place.

The tenth tumulus is on another mound of the same ridge, more to the W. Close to it is the foundation of a long straight wall about 1½ foot thick.

All these tumuli are unquestionably of very ancient date. No excavations of moment having yet been made in them, their positions alone afford matter for remark and conjecture. Not one of them is situated in the plain; in general they stand upon the slope of a mountain ridge; and they are all near the sites of ancient towns: most of them are near fountains or wells: they may have been buildings intended to preserve water during summer and keep it cool for drinking, or they may have been consecrated to the water deities.

Next in order to these mounds may be noticed some excavations apparently intended to relieve the plain of its superfluous waters, and diminishing the force or shortening the continuance of the inundation, of as uncertain date and perhaps as old as the tumuli. The first is the artificial channel already noticed through which the waters of the Bunarbashi-Su are conveyed into the Egean. If travellers had inspected this work closely, they would have seen that it is cut for a considerable distance through a thick layer of rock, and must have been convinced that the turning a poor Turkish mill could never have offered sufficient inducement to such a laborious undertaking, or repaid the time, outlay, and labour expended upon it. Besides, the circumstance that a great part of the plain on the W. of the Mendere is preserved from constant inundation by this diversion of the water, sufficiently indicates its real object. No Turk or Turkish governor ever undertook so bold and toilsome an operation. A similar channel has been cut at some unknown period across the promontory of Sigæum, between the modern village of Yeni-Kevi and the hillock called Demetrios-Agios-Tepe in the middle of that promontory. The length of this channel is nearly half a mile: its banks must originally have been 100 feet high; its width is about 100 feet. It is now filled to the height of 10 or 15 feet with earth, and centuries must have elapsed since any benefit was derived from it. Such excavations are among the earliest works of mankind. We know of nothing more ancient than the canals of Egypt; the subterranean channels of the Copaic, and the emissaries of the Alban lake, are understood to be of very ancient date. The liability of the Trojan plain to inundations would, at a very early period, suggest to the inhabitants the utility of thus relieving it from a portion of its superfluous water. In short, every thing tends to suggest that these channels must belong to a period of more remote antiquity than has generally been supposed. Besides these two great artificial channels there are a number of smaller ones in different parts of the plain. The small parallel channels which connect the ancient or winter bed of the Bunarbashi-Su with the Mendere, are evidently the work of man. It is impossible to assign a date to them, but they may be very old, because the clayey soil gets so hard as soon as the water in them is dried up, that their shape is preserved in summer by the sun's heat, as in winter by the running water. The artificial channel connecting the Kalifatli-Asmak with the In-Tepe-Asmak, is intended to carry off the water brought down by the inundation of the Mendere from the village of Kalifatli.

The remains of ancient towns in and around the valley of the Mendere remain to be considered: I will begin, as with the tumuli, at Ujek-Tepe, and after proceeding to the N., return to the same point by the opposite side of the plain.

On the N. side of the Ujek-Tepe, and only separated from it by a road, is a high oval table-flat, surrounded by the foundations of an ancient wall. The inhabitants are said to have dug for stones in these foundations at a very recent period.*

A second site is found on the little cape at the S. of Beshika Bay; and a third (Αγαμεια?) near the Beshika-Tepe on the southernmost extremity of the Sigæan ridge.

---

* This spot was subsequently examined by me, but I could discover no evidence sufficient to convince me that it was an ancient site. The supposed foundations are not built; they are merely long trenches dug under the edge of the flat hill to obtain materials for building from a calcareous stratum which forms its upper layer.—*T. Spratt.*

About the middle of that ridge, close to the N. side of the Agios-Demetrios-Tepe, Mr. Spratt discovered the foundations of an ancient square-blocked city wall, following the edge of the broad table-land.* Here may have been the real site of Sigæum: at Yeni-shehr are no remains whatever of ancient town-walls, and the level on which it stands does not appear extensive enough for the ancient town. I am inclined to believe that when the Turks conquered the country there was still a town where the fragments of a wall have been discovered by Mr. Spratt, and that Yeni-shehr (new-town) was erected near it, after it had been destroyed and deserted. It ought to be mentioned however that there are a great number of deep wells excavated in the rock at Yeni-shehr, and this may be an argument for fixing upon that village as the site of Sigæum.

Broken stones, pieces of brick, and pottery are found in considerable quantity in the vicinity of the tumuli of Achilles and Patroclus. We know from Pliny (v. 30) that the Achilleon was originally built near the tomb of Achilles, and afterwards removed nearer to the sea where his fleet had its station. Possibly Kum-Kaleh may occupy the exact site, and hide all vestiges of the ancient town except some wells of uncertain date.

Where the winter stream of the Bunarbashi-Su joins the Mendere, there are some immense blocks of irregular shape; they may have formed part of the wall of a small fortress.

Stones, bricks, and pottery are found on the hill between the In-Tepe and the In-Tepe-Asmak, and there can be little doubt that they indicate the site of Rhæteum, from which the promontory had its name. Choiseul Gouffier has placed the ruins of Rhæteum at It-Ghelmes, and the ruins of Aphrynium at Aren-Kevi. It-Ghelmes and Aren-Kevi are two names for the same place; and there are no ruins there. The ruins on the brow of the ridge to the W. of It-Ghelmes evidently belong to Aphrynium. The only ruins that can indicate the site of Rhæteum are those situated near the In-Tepe and In-Tepe-Asmak, which had remained unnoticed by all modern travellers until discovered by Mr. Spratt.

Fragments are found near Halil-eli and Dumbrek, but they have all been taken from the ruins of Ilium recens.

The identity of the ruins at Hissarjik with Ilium recens is so generally admitted that I need only state my concurrence in the prevailing opinion. Amongst these extensive ruins, the Acropolis, the theatre, the foundations of a bath, with an aqueduct and the town-wall, may be easily recognised.

---

* The foundations of a wall fenced with quadrangular blocks of limestone are well defined in three or four places on this hill. On the N. side it is continuous for nearly 100 yards.—*T. Spratt.*

Kum-Kevi has the appearance of an ancient site, though most of the fragments have been brought from Ilium recens.

Upon the Chiblak range, in a line between Hissarjik and the flat mound called Kara-Yur-Tepe, about a mile W. of the latter, we found some fragments of bricks and pottery among stones; and on the Kara-Yur-Tepe there appeared to be the foundations of houses or towers. These probably indicate the site of the Ilian village (Ι'λιἐων κῶμος) and Callicolona of Demetrius of Scepsis.

A small valley, in which is a low flat tumulus, separates the site of Ilium recens from the ridge of the Pasha-Tepe. This ridge, though less extensive than that of Hissarjik, seems to present in other respects a more eligible site for a town. The Pasha-Tepe, and two wells at its side, appear to indicate that it has at one time been occupied.

What have been called the ruins at Chiblak are merely a Turkish burying ground, full of fragments from Ilium recens.

Some indications of ancient buildings are found on the hills above the Judan, near Akchi-Kevi. They are extensive, although there is no appearance of a town wall. Near them, and now surrounded by the marshy lake, is a bridge, 20 feet wide, across the channel of the Kalifatli-Asmak. It is evident that the extension of the lake must have rendered this bridge impassable to carriages for many centuries; the stones of the arch are about 1½ foot in thickness; and yet the wheels of carriages have worn not merely deep tracks, but positively large holes through them. It is impossible to assign a date to this bridge, or to any of the bridges of square blocks for foot passengers which are pointed out on the map.

Ruins of ancient buildings are found at Akchi-Kevi, principally in the vicinity of the Kanai-Tepe. Those on the left bank of the Kimar, a little higher up, are probably of more recent date. There are none near the aqueduct.

With the exception of the remains at Kum-Kevi, the large blocks at the ancient mouth of the Bunarbashi-Su, and a few large stones near a well at Kalifatli, there are no remains *in situ* in the plain itself. Of the marble columns near the road from Chiblak to Bunarbashi, to which the drawing of Choiseul Gouffier gives the appearance of a temple, not one is in its original situation: four of them are of granite, and one of marble, and one of the four is inverted.

The most considerable ruins, after those of Ilium recens, are the remains of an Acropolis on the heights of Bunarbashi. The traces of the Acropolis walls are continuous: at the point where an offset of the steep rock advances like a spur into the valley of the Mendere, three layers of square stones may still be seen in their original position. We did not see the steps which M. Mauduit (in 1811) discovered at the end of this spur, probably because it was covered with earth, for I was subsequently told, upon good authority, that one of the officers of the French squadron had seen it. On the south side of the Acropolis are plainly to be seen foundations of terrace walls rising one above another. A wall of small stones, now covered with earth and grass, but which has evidently been of considerable height and thickness, crosses this high rocky promontory. Inside of this wall is a large hole, surrounded by heaps of earth and stones, indicating an ancient cistern. Outside the wall, at its north-eastern end, is a large pit, which probably also served for a cistern. To the W. of this is a second wall of still greater dimensions, extending likewise across the summit of the hill from one precipice to the other. Indications of buildings can be traced between the two walls. Outside of the second wall are the three tumuli placed in a line from N.W. to S.E. I have already mentioned that there is a large pit in the solid rock near each of them. Beside the fourth tumulus, on the E. end of the ridge, are heaps of stones, apparently remains of houses. A low mound, of which it is difficult to say whether it be natural or artificial, runs along the top of the ridge leading from Bunarbashi up to the three tumuli. There are vestiges of a wall on the edge of one of the lower hills at the side of the Mendere, N. of the Acropolis; and a number of large blocks are seen on the road which leads down to the river at the end of the valley of Arabler from the fourth isolated tumulus. There are many fragments in the village of Bunarbashi and its burying-ground, but none of them in their original sites. At the foot of the ridge, between the village and the Mendere, is a nearly isolated hill, which in winter is surrounded by the inundation. The sources of the Bunarbashi have been frequently described. Some discovery might be made were future travellers to clear out the sand of what is called the warm basin, and to examine whether the modern basin in the spring next to it, now nearly choked up with grass, does not conceal an ancient one.

Having thus endeavoured to convey a distinct and correct notion of the plain of Troy as it at present exists, a few remarks relative to the *Homeric* topography may not be out of place. I begin with the Scamander, for everything depends upon the identifying of that river.

Pliny's brief account of the Troad is important for this purpose. He enumerates the places on the coast in the direction from S. to N. and N.E. After mentioning the town of Nee he proceeds:—" Scamander amnis navigabilis et in promontorio quondam Sigæum oppidum. Dein portus Achæorum in quem influit Xanthus Simoenti junctus, stagnumque prius faciens Palæscamander." It is clear from this passage, that in the time of Pliny the name of Scamander was given to a stream which discharged itself into the Ægean Sea S. of Sigæum, and which still formed a marsh communicating with the Simois to the N.W. of Sigæum by a branch called Palæscamander (the old Scamander). This statement is applicable to the Bunarbashi-Su, and to no other river of the plain. Eustathius corroborates the statement of Pliny by his etymology of the name of the river; he says, (p. 1197, *ed. Rom.*) "The name of the Scamandrus is derived from σκαμμα and ανδρος, because it was *cut* by the *man* Hercules." The derivation may not be worth much, but it proves the existence of the artificial channel of the Scamander long enough before the time of Eustathius to have admitted of such a legend growing up.

The next point to be ascertained is whether the river called Scamander in the time of Pliny corresponds with the description given by Homer of the river to which he attributes that name. The poet says, that one of the two sources of Scamander "flows with warm water, and smoke is generated from it as from burning fire;" and that the other "flows *in summer* like hail, or cold snow, or the crystal (ice) of water." (Iliad, xxii. 149-52). The constant temperature of all the springs of Bunarbashi is from 63° to 64°; consequently, they are warmer than the air in winter. The vapour arising from the surface of the warmer water will be more observable in the case of the spring which spreads out in a broad basin than in that which steals through a narrow channel choked up with grass. In summer the temperature of the springs is slightly lower than that of the atmosphere; and it is a fact, that the water from the sources at Bunarbashi, which do not spread out, tasted more cool and pleasant in the month of August than the water from the principal spring, which expands into a basin. The popular imagination would be in Homer's time struck with the spring which smoked in winter, and the spring which was cool in summer, and the poet has done no more than graphically expressed the popular impression. He says simply that vapours ascended from the surface of one of the springs, and that the other was very cold "in summer." It may also be remarked, that the word (λιαρῷ) generally translated *warm*, means more frequently *smooth*, and that Homer may have used λιαρῷ ρεει antithetically to προρέει—"flows smoothly" to "bursts forth;" intimating that the smooth-flowing water gave forth vapours, and that the impetuous spring was cool in summer, which is the case. The poet deals with striking appearances, not with scientific facts. It is no objection to his description that the chemist can show it to be deficient in strict accuracy. But, on the other hand, there must be an *appearance* to warrant what he says, and the Scamander of Homer must present such a phenomenon at its sources as he describes. The Scamander of Pliny—the Bunarbashi-Su of our day—presents this phenomenon. Following the course of the Bunarbashi-Su, we find it corresponds exactly with Homer's description of the Scamander. The low banks of the river (v. 36); the high water overflowing the banks (xxi. 9, 26); the "deep dizzy stream" flowing through the "fruitful plain" (xxi. 602-3); the richly wooded margin (xxi. 352); all are true to nature.

The natural channel by which the waters of the Scamander found their way into the Simois (the modern Mendere) in the time of Homer—the Palæscamander of Pliny—still exists, as may be seen on the map. At certain seasons the Scamander still joins the Simois. After or during heavy rains, when Jupiter sits on Mount Ida, collecting his clouds and throwing his thunder-bolts, Scamander still rises and overflows his banks, calling on his brother Simois to fill his channel from all fountains and torrents, that they may meet on the plain. At such times the water of both rivers becomes yellow, but more especially that of the Scamander, which has a flat bed in the clayey plain; and hence that river received the name Ξανϑος (yellow).

If the Bunarbashi-Su is the Scamander, the Mendere must of necessity be the Simois. I trust the description of this river will have convinced the reader that it never has altered its bed. The hypothesis that it now flows in a different bed from what it did formerly, originated in a mistake of Choiseul Gouffier, who supposed the Pasha-Tepe-Asmak to be the Kalifatli-Asmak, and the latter water-course the ancient bed of the Scamander.

This seems the proper place to notice another hypothesis, that in the time of Homer a large bay intervened between the Sigæan and Rhætean promontories. The elevation of the whole slope of the In-Tepe ridge and the deep steep banks of the arms of the Kalifatli-Asmak, in the lower part of the plain, appear to be incompatible with the assumption that such a bay ever existed. The extensive sea-lakes at the bottom of the plain are also, I think, inconsistent with the hypothesis. They are very deep; and it is inconceivable that the plain could be protruded into the Hellespont without their being first filled up. The current of the Hellespont carries off and deposits the sand which the Mendere brings down on the shoal to the left in leaving the Hellespont. This view is corroborated by Sir J. Wilkinson's investigations into the accumulation of soil in the valley of the Nile. The plain of Troy is alluvial, but the alluvium was deposited long before the time of Homer—perhaps before Mount Ida had risen from the sea.* Lastly, the existence of a bay in former times is entirely unsupported by evidence: it has been gratuitously assumed in order to reconcile the position of the ruins at Hissarjik with the distance from the sea which Strabo assigns to Ilium recens; and the correctness of the distance of 12 stadia, as it is given in the common editions of that geographer, may well be questioned, seeing that in Scylax it is said to be 25.

The Kalifatli-Asmak seems to have most claim to the name of Heptaporos—which means a river with many fords—but this is a mere conjecture.

The Resus, according to Strabo (and Eustathius, p. 889, ed. Rom.), was called Roites (Ροιτης). This being evidently the river next to the promontory of the same name, was most probably the branch which detaches itself from the Dumbrek near Halil-eli.

The Dumbrek river is, I am persuaded, the Thymbrius; for the Turks, who can account for the name of every village in the plain, cannot explain the meaning of Dumbrek and Dumbrek-Kevi.

The Kimar I believe to be the Andreios; and, if I am right in this conjecture, the small river which I have called the Pasha-Tepe-Asmak must be the Karesus.

Piræus, *Nov.* 8, 1839.

---

* That the effect of rivers in altering the character of the coast at their mouths has been frequently exaggerated may be admitted without going so far in the other extreme as Dr. Forchhammer has done here. After reading his account of the violent alternations of moist and dry, heat and cold, to which the plain of Troy is exposed, it is scarcely possible to conceive that it has remained altogether unaffected by them for the long space of three thousand years. The case of the Nile is not a parallel one to that of the Mendere. The Nile deposits its alluvium all along the broad valley from above Kartum to the sea, and may therefore retain little wherewith to extend the coast-line. But the whole alluvium of the Mendere is deposited between the mouth of the Kimar and the sea. The frosts and thaws, too, to which the plain of Troy is subject, will break up the surface soil, and expose it more to the action of the waters, an element which is not at work on the Lower Nile. The sea-banks of the lagoons at the lower end of the plain of Troy are the same as we find the sea casting up on many coasts at a short distance from the shore: in proportion as the plain was extended into the sea, these banks would be formed further back in the sea; the lake would be pushed out as well as the coast-line. Mr. Spratt has the following note upon this passage:—" The alluvial banks of the In-Tepe-Asmak, near its mouth, are high and steep, and the elevation continues along the shore for a few hundred yards, not terminating abruptly, but inclining gradually from the Asmak to the marshy lagoon, the edge of which is low; evidently indicating that a deep indentation or arm of the sea once entered here, which has not yet been filled to the general level of the plain."—ED.